RESEARCH ARTICLE

Learning Habits Evaluation of First M.B.B.S Students of Bhavnagar Medical College

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Received Date: 02.07.2012 **Accepted Date: 08.08.2012**

DOI: 10.5455/ijmsph.2012.1.81-86

ABSTRACT

Background: The learning habit of a learner is the way he handles new information and experiences, and determines its outcomes. Various types of learning habits are adopted by students, including visual (V; learning from graphs, charts, and flow diagrams), auditory (A; learning from speech), read-write(R; learning from reading and writing), and kinesthetic (K; learning from touch, hearing, smell, taste, and sight).Understanding their preferred learning habits as visual, auditory, read-write or kinesthetic learners will help to improve the teaching methods adopted. Facilitators and supporters themselves may need guidance and training in how to identify feedback and adapt learning to individual's habits.

Objective: To assess different learning habits of medical students and hence provide student oriented education, producing efficient doctors.

Materials and Methods: This study was performed at Department of physiology in Govt. Medical College, Bhavnagar in March 2011.Eighty four (84) medical students of first MBBS were participated in the study. By using the English version of the visual, auditory, reading or writing, kinesthetic (VARK) questionnaire, we measured the difference in learning habits of First year medical students.

Results: In Unimodal learning habit highest preference was given to auditory mode (48.57%), then to Kinesthetic (28.57%) & then to read (14.29%) & visual (8.57%). Among Multimodal learning habit students (n=44), 64.29% students preferred bimodal, 2.38% students preferred trimodal and 33.33% students preferred quadrimodal learning habit.

Conclusion: Knowing that students have different preferred learning modes, will help medical instructors in our faculty develop appropriate learning approaches and explore opportunities so that they will be able to make the educational experience more productive. The results will help faculty to develop appropriate learning approaches and explore opportunities, so that they will able to make the educational experience more productive.

Key Words: Learning Preferences; Unimodal and Multimodal Learning Habit; Medical Students

INTRODUCTION

The learners take in and process information in many different ways.[1] These are termed as learning habits. The learning habit of a learner is the way he handles new information and experiences, and determines its outcomes. According to Keefe[2], learning habit is "characteristic cognitive, affective and psychological behaviours that serve as relatively stable indicators of how learners perceive, interact with, and respond to the learning environment". Learning results in gain of knowledge, skills and attitudes. It has been observed that different learners have their own particular learning habit, and if the method of information delivery to them conforms to their particular learning habit they learn better.[3]

Conformity of learning habit with the instructional strategy, therefore, is likely to yield better learning outcomes.[4] Disparity between learning habit and instructional strategy may account for course dropouts, failures, and examination phobia of learners and faculty may misinterpret it as lack of motivation, disinterest of students and sometimes simply an IQ problem.[5] Facilitators and supporters themselves may need guidance and training in how to identify feedback and adapt learning to individual's habits.[6]

Three learning habits have been recognized according to the VAK model as visual, auditory and kinesthetic habits to which is added the read-write habit (the VARK model). Developed by Fleming and Bonwell, the VARK is a tool that categorizes learning habit according to Visual, Auditory, Read/write or Kinesthetic modes as indicated on a simple preference survey. [7,8] Whereas many theories of learning and learning habits have been proposed, Fleming's learning habit inventory is the most commonly used model of learning which is known as VARK questionnaire.[9] The **VARK** questionnaire is a 13-item, self-reported, multiple-choice questionnaire that can be completed in 10–15 min. The VARK questionnaire was selected because it is concise, appropriate it is a simple 13-question survey Questionnaires, which were evaluated on the basis of previously validated scoring done by others.[10]

Students entering in College are empowered to move towards self-directed professional learning and beyond didactic tuition. Educational researchers supposed that everyone has different learning habits[11-13] and if the method of information delivery to them confirms to their particular learning habit they learn better.[3]

Medical students approach to their learning has important implications for their medical education. In particular, students' learning habit and their approach to study have a significant impact on both the quality of their learning and their future academic success.[14,15] When the learning habits of most students in a class and the teaching habit of the professor are seriously mismatched, the students are likely to become uncomfortable, bored and inattentive in the class, do poorly on tests, get discouraged about the courses, the curriculum and themselves, and in some case change to other curricula or drop out of school.[16,17]

All medical students experience discomfort at some point during the training process.[18] There are about 53 theories of learning and about 80 models of learning habits have been proposed.[19] Most take into account the sensory modalities of information input as the determinant of learning habit. Three learning habits have been recognized according to the VAK model.[7] Model as visual, auditory and kinesthetic habits to which is added the read-write habit (the VARK model).[8] Developed by Fleming and Bonwell, the VARK is a tool that categorizes learning habit according to Visual, Auditory, Read/write or Kinesthetic modes as indicated on a simple preference survey.[20,21]

A substantial number of medical students have a preference for several learning habits, yet medical faculties teach overwhelmingly in a single mode: lecture. For the students, listening to lectures is essentially a passive learning method that encourages rote memorization and note-taking as the means of assimilating knowledge.[22] Thus, Facilitators and supporters themselves may need guidance and training in how to identify feedback and adapt learning to individual's habits.[23] Keefe also noted that a better understanding of learning habits by the faculty can help to reduce the students' level of frustration and improve instructional delivery methods. Instructors should attempt to alter their methods of teaching and give students with different learning habits an opportunity to learn in an environment more conducive to their preferences.[24]

The **aim** of this study was to analyze the learning habits of the first MBBS medical students of our college and apply it in educating students so they learn better.

METHODS

This study was performed at Department of physiology in Govt. Medical College, Bhavnagar

in March 2011 after obtaining permission from institutional review board. Eighty four (84) medical students of first MBBS were participated in the study. The purpose of the study was explained to the students. The VARK questionnaire (developed by Fleming)[9] was selected because it is concise and quick to complete. The respondents were permitted to omit a question or to choose two or more options if appropriate. Questionnaires were evaluated on the basis of previously validated scoring instructions.[10] All participating students received an explanation of the study's purpose and assurance of anonymity of their results from the other students if desired. Those students who did not want to participate in the study were removed without repercussion. Students completing the questionnaire received information identifying their individual learning habit along with advice on proper study habits. Student questionnaires were collected and analyzed to identify each student's modality preferences.

RESULTS

Out of 84 students 7 students did not disclose their information, so they were not counted in the study. Out of the total students Visual, Auditory, Read and Kinesthetic mode was preferred by 4.48%, 10.48%, 7.46% and 14.93% of students respectively, while multimodal learning habit was preferred by 62.69% as shown in Table I. Difference in boys and girls learning habits were evaluated by VARK questionnaire and according to its final results, which is shown in Table 1.

Table-1: Learning Habits (VARK Questionnaires) in Boys & Girls

Learning Habit	Boys (n=36)	Girls (n=41)	Total	p value
Visual	2	1	4.48	>0.05*
Auditory	5	2	10.45	>0.05*
Read	4	1	7.76	>0.05*
Kinesthetic	2	8	14.93	<0.05**
Multimodal	21	21	62.69	>0.05*

In Unimodal learning habit highest preference was given to auditory mode (48.57%), then to Kinesthetic (28.57%) & then to read (14.29%) & visual (8.57%) as shown in table II. Unimodal group was further categorized in boys and girls as shown in table 2.

Table-2: Unimodal Learning Habit in Boys & Girls

	Boys	Girls	Total	p value
Visual	2	1	8.57	>0.05*
Auditory	8	12	48.57	>0.05*
Read	4	1	14.29	>0.05*
Kinesthetic	2	8	28.57	<0.05**

Among Multimodal learning habit students(n=44), 64.29% students preferred bimodal, 2.38% students preferred trimodal and 33.33% students preferred quadrimodal learning habit as shown in Table 3. Table 3 shows Multimodal learning habit categorized in boys and girls.

Table-3: Multimodal Learning Habit in Boys & Girls

	Boys (n=21)	Girls (n=21)	Total (%)	P Value
Bimodal	19	8	64.29	>0.05*
Trimodal	0	1	2.38	>0.05*
Quadri-modal	2	12	33.33	>0.05*

Of the total students who preferred bimodal habit (35%), Auditory and Kinesthetic was preferred by 50% Student, Reading and Kinesthetic was preferred by 23.07% and Auditory and Reading was preferred by 26.92% students. None of the Student preferred other mode. In case of trimodal preference (2%) all student preferred Auditory, reading and kinesthetic mode. And Quadrimodal preference was preferred by 18.19%.

DISCUSSION

Knowing the learning style of students is a valuable skill in education. Knowledge of learning styles may help educators to identify and solve learning problems among students, thus helping their students to become more effective learners.[20,9] In the present study, most of the students (62.69%) exhibited multimodality, indicating that they use a combination of learning styles when learning information. These findings are compatible with other studies[12,25,26] that have used the VARK

questionnaire as a learning style inventory and said the most one is Multimodality. For example Dynakar[10] found multimodality to be 58.0% in the caregivers of asthmatic children; Lujan [25] found it to be 63.8% in first-year medical students; Erkus[27], found it to be 53.2% in medical students in their first 3 yr; and Murphy[12] found it to be 56.0% in dental students.

Multimodal students prefer information to arrive in a variety of modes. These students do not learn by simply sitting in a classroom listening to the educator, memorizing assignments. To achieve meaningful learning, these students must talk about what they are learning, write about it, relate it to past experiences and knowledge, and apply it to their daily lives.[28] In a passive lecture format, the method generally used in our faculty, all students are assumed to be auditory learners, although in the present study about 30% of the students were found to be single auditory learners. It is important to emphasize that students will only remember 20% of what they read, 30% of what they hear, 40% of what they see, 50% of what they say, and 60% of what they do. This average increases to 90% for information they say, hear, see, and do.[29]

Other studies have shown that students learn better by using active learning strategies, because active learning strategies reach all types of learners.[25,28] Active learning strategies promote thinking through reasoning and improve problem solving and decision-making skills. In large classes, active learning strategies can also be applied. Discussion in class, cooperative learning exercises, role play, simulations, models, debates, and games are active learning strategies that can be used in larger classes.[30] These activities also promote group work and generate high levels of motivation and enthusiasm. For medical students, who will always be working in team environments, these learning experiences are invaluable.

To achieve the best result for education, we are proposing drastic reductions in passive lecture hours and preparing a more problem-based curriculum. Therefore, the strategy of using multiple teaching methods can help students develop different learning preferences and enjoy their learning experience. However, some students prefer one particular learning modality. Such students need special attention from the instructor since they could struggle to understand the subject material if their particular learning preference is not predominant in the course.

Health professions usually require several simultaneous skills involving sensory components such as visual (i.e., deciphering graphic content in research articles), auditory (i.e., listening to patients or clients), reading-writing (i.e., reading journal articles and keeping records), and kinesthetic (i.e., learning or performing physical exams and procedures). Thus, in addition to improve their academic performance, knowledge of learning theory may help students become aware of and develop ways to master these lifelong professional skills.
No specifically significant gender difference was observed in selecting unimodal or multimodal learning habit which was consistent with study done by Zeynep.[31] Both Male and Female preferred multimodal learning habit. In Unimodal learning habit girl preferred auditory learning habit over other habits while boys showed equal preference for visual and kinesthetic learning habit. This difference may be attributed to males being more focused externally and females being more introspective and self-critical.

It was interesting to note that of the six possible bimodal combinations (VA, VR, VK, AR, AK, and RK), only one combination was represented in the female student population AK in contrast to male who represented three combinations AK, RK and AR.

Of the four possible trimodal combinations (VAR, VAK, VRK, and ARK), three were represented in the female student population VAK, and ARK, where as all four were represented in the male population VRK, and ARK. This does not suggest that there are innate differences in aptitude between genders nor it promotes separation of gender in learning

process, this actually support mix gender classrooms allowing both gender with equal opportunity to learn from each other as suggested by Lie et al.[32]

In the present study 63.69% student exhibited multimodality indicating that student use a combination of learning habit, P-value is<0.005 is very significant these finding are in accordance with other studies[12,13,25] that have used VARK questionnaire as a learning habit. Student who prefer Multimodal learning habit do not learn by simply sitting in a classroom listening to the educator, memorizing assignments.[1] Thus, teaching should be multisensory and filled with variety. Students are able to learn effectively as long as the teacher provides a blend of visual, auditory, reading/writing and kinesthetic activities. To achieve this goal, it becomes important to use active learning strategies.[33] With active learning strategies, which includes teaching visual learners by the presence of models and demonstrations.[34-36] Auditory learners by discussion during peer instruction, collaborative testing, debate, games, and answering questions. Manipulating models and role playing satisfies kinesthetic and tactile learners. Active learning strategies promote thinking through reasoning and improve problem-solving and decision-making skills.[37,38]

It was seen in this study that in unimodal none preferred visual as learning habit, even in bimodal habit; in combination with other learning habit also visual mode was not preferred. In trimodal also visual mode is least preferred as seen by Latha Rajendra Kumar.[39] It may be difficult at times to tailor coursework to the individual learning habits of each student. However, in these situations, by being aware of their learning habit, the students may contribute to their academic success by promoting self-awareness and their use of learning strategies that work for their learning habit.

Limitation of the Study: In this study we have studied only one batch of one college, for better implementation of learning style of student in teaching longitudinal study is required.

CONCLUSION

Study shows that students have different preferred learning modes; it will help medical instructors to develop appropriate learning approaches. Awareness of student learning habit and personality type could provide a basis for instructors to optimize teaching methods for diverse student populations. Learning habit diversity, when properly understood by both students and educators, can be converted into appropriate teaching and learning methods that enable more students to attain success.

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Cite this article as: Shah C, Patel S, Diwan J, Mehta H. Learning Habits Evaluation of First M.B.B.S Students of Bhavnagar Medical College. Int J Med Sci Public Health 2012; 1:81-86.
Source of Support: Nil
Conflict of interest: None declared